

Classroom collaborations

Enabling sustainability education via student-community co-learning

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Abstract

Purpose – This study aims to explore co-learning classes, a novel approach to leveraging universities' capacity to contribute to the local sustainable development agenda whilst enhancing students' learning. These participatory classes were piloted within a UK university masters' module focussed on action for sustainability. The classes sought to combine knowledge exchange, reflection and social network development by bringing together students and community stakeholders.

Design/methodology/approach – The classes were run as a series of five free events, each focussed on sustainability issues relevant for local practitioners. These were either regular timetabled sessions opened up to the public or additional on-campus public events. Attendance was either face-to-face or online. Evaluation was based upon participation data, written feedback and module leader's post-event reflections.

Findings – The classes successfully secured participation from diverse community members, including local government staff, voluntary sector workers and interested individuals. Both students and community stakeholders valued the participatory format, linkages of theoretical and practical knowledge and diversity of attendees.

Research limitations/implications – Findings are based upon a small-scale pilot study. Further research using a wider range of contexts is required to enhance understanding of the co-learning approach.

Practical implications – This paper highlights some key practical issues to consider if employing co-learning approaches in other contexts, including using inclusive language, aligning with students' motivations and choosing appropriate focal event topics.

Originality/value – Opening up participatory university classes for the public to attend as co-learners is a rarely used approach and has little coverage in academic literature. This small-scale study therefore has value by highlighting some of the potential impacts, strengths and limitations of this approach.

Keywords Education for sustainable development, Social learning, Sustainability education, Sustainable development goals, Co-learning, Community university partnerships

Paper type Case study

Introduction

The sustainable development goals (UN, 2016) are increasingly used as a way of framing contemporary societal challenges within the higher education sector. Universities are well positioned to harness and integrate their education, research, operations and externally facing activities to contribute to the achievement of the goals (SDSN, 2017). A key responsibility for universities in this regard is Education for Sustainable Development



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(ESD), which is specifically addressed within the SDGs via Target 4.7 within Goal 4, implying a need to embed ESD within taught curricula (UNESCO, 2018). A range of reporting frameworks are emerging at present to incentivise and mark progress against the SDGs in universities, including the United Nations Academic Impact Programme (UN, 2018), the SDG Accord (EAUC, 2018) and the Times Higher Education SDG League (Bothwell, 2018). In the UK context, this broad framing of the purpose of universities offers a timely counterpoint to recent trends towards marketisation in higher education, that is, seeing university study primarily as a route to future employment. In contrast, contributing to collective action for the public good can be viewed as a third core function of universities alongside education and research (Müller-Christ *et al.*, 2014).

Academic and policy-oriented literatures on both Sustainable Development and ESD point towards partnership-based approaches to their implementation. This stance relates to the inherent complexity of sustainability issues, the typical involvement of multiple stakeholders from a range of backgrounds in any given situation, and the need for ongoing adaptation to evolving socio-ecological and economic conditions (Lang *et al.*, 2012; Rammel *et al.*, 2007). This outlook is given a high priority amongst sustainability practitioners, and as a result, partnership approaches towards achieving the SDGs are listed as the 17th goal (UN, 2016). Learning is viewed as an integral part of action for Sustainable Development, to set priorities, evaluate what works and to enable ongoing adaptation in an ever-changing context (Keen *et al.*, 2005; Tilbury, 2007). Learning to help address or navigate sustainable development challenges is typically framed as a transdisciplinary activity (Lang *et al.*, 2012), requiring collaboration across diverse ways of knowing from diverse actors, including citizens, practitioners, researchers and others (Tilbury, 2007). Loeber *et al.* (2007) highlight that learning here could be understood in several ways: as an individual's cycle of learning from experience, reflection and theory; as collective learning processes; or as contributing to processes of socio-technical innovation such as community-led initiatives (Seyfang and Smith, 2007).

Education for Sustainable Development mirrors this outlook, as its purpose is to equip people to develop the competencies to play an effective part in real-world action for sustainable development, often by employing transdisciplinary processes of learning and action (Sterling, 2001; Wiek *et al.*, 2011). A challenge of implementing ESD in many universities is the common approach of teaching more propositional, or theory-based, knowledge within a single discipline, and the lack of credibility afforded to know-how developed through practice (Anderson and Herr, 1999). As a counter-point, ESD commonly focusses on approaches such as projects, problem-based learning and learning through volunteering experiences (Sterling, 2012), that can enable a holistic approach combining theory and practical experience. ESD also aims to trigger reflective learning on the goals of Sustainable Development (Vare and Scott, 2007) and, as such, can profit from innovative approaches that enable learners to challenge their existing assumptions, values or goals (Tilbury, 2007).

The focus of the present paper is the significant role that universities can play in enabling sustainable development within their locality or region (Shiel *et al.*, 2016). This activity is rewarded in the UK, as it can form a key component of evidence for assessment under the Research Excellence Framework (REF), with "Impact" in domains such as capacity building, and community learning (ESRC, 2018) being used as criteria for university funding. Community University Partnerships (CUPs) are a commonly employed approach for achieving this (Hart *et al.*, 2009; Davies *et al.*, 2016) and for applying SDG17 (Partnerships for the Goals) on a local level. Some of the strategies used include providing student volunteers, undertaking collaborative research or knowledge exchange projects

(ESRC, 2018) or delivering taught courses via links to local organisations (through placements or otherwise). Universities are also well placed to use their resources and expertise to act as intermediary organisations (van Lente *et al.*, 2003) to support regional innovations for sustainable development (Sol *et al.*, 2013), such as renewable energy deployment or local transport policy.

Given this context, this paper takes as its starting point a hitherto under-explored strategy to contribute locally or regionally to sustainable development whilst also enhancing students' learning. This strategy is the delivery of *co-learning* classes, meaning taught classes involving both students and community stakeholders, where everyone attends as a learner. *Community stakeholders* refers here to anyone linked to a course in addition to its students and teaching staff; these might include other staff and students from the university and local citizens, professionals and volunteers. The co-learning classes approach was explored for a Masters' module at De Montfort University (DMU) in the UK in two settings, timetabled *open classes* and as additional *public events* (each described below).

The initial concept behind the project was to link students with a wider local *community of practice* working with the ideas taught on the course. A community of practice (CoP) can be defined as people:

Who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis (Wenger *et al.*, 2002).

Three core aspects of a CoP identified by Wenger (1998) are *joint enterprise* (i.e. working towards a common goal), *mutual engagement* (e.g. ongoing processes of interaction) and a *shared repertoire* (i.e. common language and assumptions in relation to an issue). Within these terms, the module leader had recognised a joint enterprise (promoting sustainable development locally) that both the module and local professionals and citizens were engaged with, but repertoires that were not shared, due to a lack of interaction between the theoretical knowledge taught on the course and practice-based knowledge in use by local sustainability practitioners. Thus, linking to the third aspect of a CoP, a shared repertoire, the events were intended as a platform for mutual engagement to enable practitioners to encounter theoretical concepts linked to their work and students to engage with current, local practice. Through this approach, the events aimed to develop the professional networks of students and help build a sense of identity as belonging to a CoP addressing local sustainability, aligning with Wenger's (2000) observation that this sense of identity amongst members is a key aspect of a thriving CoP.

This paper reports the delivery approach taken to this event series and the impacts for learning, network development and otherwise. A literature search in support of this paper found no documented examples exploring this approach. The only mention found of similar work was of Brighton University's sector-leading Community University Partnership Programme (CUPP), which enables voluntary and community sector workers to join taught courses on Research Evaluation to support their own project evaluation work (Hart *et al.*, 2009). Whilst other papers discuss strategies of placing students in the community (Schmitz *et al.*, 2010), no other work discussing the community joining classes as on campus as co-learners was found. Thus, there is value in an exploratory case study that seeks to identify the impacts and process of co-learning approaches and potential implications for future practice.

Case study setting

This project took place at DMU, a former polytechnic university with over 20,000 students, based on a city centre campus in Leicester, a city of 300,000 people in the East Midlands area

of England, UK. DMU has a strong commitment to contribute positively to the city of Leicester where it is based, embedded as one of five themes in its Strategic Plan as “Promoting Our City” (DMU, 2018). This commitment manifests via collaborative work with local institutions (e.g. the football club, hospitals, digital arts centre), volunteering and placement opportunities for students, and collaborative research projects with the local council and businesses in the city and region.

DMU also has a strong commitment to contribute to the Sustainable Development agenda. The UN Sustainable Development Goals (SDGs) are put forward as a focus for teaching, research and other activities in its Strategic Plan (DMU, 2018), and DMU has partnered with the United Nations over the past three years in a range of projects focussed upon student experiences and positive impacts from academic work.

The module that is the focus of this paper, Leading Change for Sustainability, is a 15-credit elective within two taught Masters programmes, Energy and Sustainable Development and Energy and Sustainable Building Design. Taken together, the programmes typically recruit 10-30 students per year, from the UK and overseas, to study in a range of modes (full or part time; attendance or distance learning). Many participants are mature students, with part-time students often fitting the course around their existing professional commitments in fields such as sustainability governance, energy management or building services engineering. Eight 15-credit modules are delivered in 12 half-day blocks across two semesters followed by a self-directed 60-credit dissertation. Learning in class is supported by a virtual learning environment (VLE), which hosts course materials and discussion forums. Full-time students are in attendance on Thursdays and Fridays, with many students being based in the region, rather than Leicester, and travelling to DMU just for timetabled sessions.

Leading Change for Sustainability focuses on how to enable pro-environmental societal and behavioural change in a range of contexts. The course materials and activities emphasise a holistic approach to knowledge development, drawing on both traditional academic evidence and insights developed via reflective practice. Taught classes follow a constructivist approach (Tynjälä, 1999), using students’ prior knowledge and experience as a starting point, and creating an environment for dialogue with other students, practitioners and concepts from literature. The module seeks to employ Sterling’s (2001) principles for developing Sustainability Education, moving beyond “learning about” to “learning in” sustainability via project work addressing contemporary sustainability challenges on campus and attempting real-life pro-environmental behavioural changes. Assessment is via two essays and a series of short reflections on a self-directed behaviour change initiative.

Methods

What was done?

The project enhanced the (Leading Change for Sustainability) module via a programme of co-learning experiences for students and community stakeholders. The programme consisted of two “open classes”, where stakeholders could learn alongside students in regular timetabled sessions and three “public events”, open to both students and community stakeholders, run as interactive workshops on Thursday evenings after scheduled classes. Open class sessions ran for three hours on Thursday afternoons with a short break midway. Public events ran for two hours in the early evening, except event 2 which ran in the morning. A summary of the events held is given in Table I, including a shortened version of the topic focus for use in this paper.

Each event had a focal topic, chosen from issues covered in the module. Three events were organised around the more practice-oriented aspects of the module, covering how to

vent number and title	Topic Focus	Format	Date
1: How to help people go green: evidence-based behaviour change principles	Behaviour Change (1st event)	Public Event	March 2017
2: How to design for behaviour change with Changeology author Les Robinson	Behaviour Change (2nd event)	Open Class	March 2017
3: Sustaining environmental action in a time of austerity: how can we do it?	Community-led Action	Public Event	March 2017
4: Environmental and climate change communication that works: ideas and debates	Communication	Open Class	April 2017
5: The “Smart City” is coming: what does this mean and how can it be sustainable?	Smart Cities	Public Event	May 2017

Table I.
Summary of the
events held

enable behavioural change and how to communicate on sustainability issues. These choices aligned with the project’s aim of bringing academic theory into dialogue with the experiences of practitioners. The two other events drew on current collaborative DMU research projects for their topic and guest speaker. The Smart Cities event aimed to critically examine an emerging concept and its potential application in Leicester, linking to a scoping project being run with the City Council. The Community-led Action event, sought to examine the contextual factors that help grassroots environmental action, and respond to an apparent gap in support structures in Leicester. This event drew upon a recently completed research project, in which DMU had provided action research support to a local voluntary sector organisation.

In terms of format, all sessions were facilitated by the module leader and featured a range of activities designed to promote interaction and critical reflection on theory and practice. All events had refreshments provided and 15-30 min for informal networking prior to teaching and learning activities. Participants were seated in groups of 3 to 6 around tables, wherever practical, to create mixed groups of students and community stakeholders. Online participation via webinar software was also possible, with audio and the screen contents being shared in order to create a “blended synchronous learning environment” (Bower *et al.*, 2015). Remote participants could actively take part by asking questions and sharing ideas via a text chat window.

The design of the learning activities was informed by a constructivist understanding of learning (Tynjälä, 1999) and therefore sought to create an environment where participants used their own understandings as a starting point for dialogue with ideas taught in the class and from discussions with others. Small variations on a standard structure were employed to embed this approach. Evaluation and individual reflection on inputs were designed for with a typical sequence consisting of: a guest speaker short lecture (10-20 min); individual written reflection on what was learned using post-it notes; mapping individual post-it note reflections onto four quadrants of a flipchart sheet at each table:

- (1) agreed (supporting a prior view);
- (2) agreed (challenging prior views, or offering new ideas);
- (3) challenge (the participant challenges or disagrees with what was said); and
- (4) other (any other thoughts).

This was then followed by group-based discussion at tables and whole group sharing of ideas and further discussion. In this way, active learning, participation and critical reflection were promoted by design, following good practice recommendations for university teaching

(Biggs and Tang, 1999). Challenging existing mental models is an important aspect of learning for sustainability (Tilbury, 2007; Sol *et al.*, 2013) and this was designed for via the prompts to note and share challenges to prior thinking, and by aiming to set a friendly, relaxed tone that could engender honest sharing of ideas. The two open classes combined an initial participatory workshop with a 30-minute guest lecture delivered by a member of academic staff followed by questions and answers. This lecture aimed to introduce contemporary evidence relevant to the topic from a local case study, again drawing upon current partnership research projects. Thus, the sessions offered a blend of formal and informal learning activities (Malcolm *et al.*, 2003), albeit in the traditional formal learning environment of a university classroom.

The whole programme and each individual session were promoted via a range of channels. Public events were set up on the website Eventbrite (through which people could register), Facebook and DMU's event listings page. A poster listing all events was produced and put up on noticeboards promoting community or sustainability-related events in Leicester and at DMU. Event details were shared by email with the module leader's DMU colleagues, professional contacts and members of voluntary networks (e.g. Leicester Friends of the Earth) with an invitation to forward on. The project was resourced internally via DMU's Teaching Innovation Project fund, which paid for 60 hours of additional staff time to plan, deliver and evaluate the activities.

Evaluation

This project was conceived of as a "Small Experiment" (Irvine and Kaplan, 2001) in teaching and learning practice, seeking to explore the impacts of a small-scale change to a system with sustainability-related outcomes. Four types of evidence were drawn upon to achieve this: data on who took part; evaluative feedback from participants after sessions; reflections on critical incidents by the module leader; and evidence of any longer-term impacts of the events programme in the 18 months since it took place. Participation data covered the mode of attendance (in-person or online), role of participant (Leading Change for Sustainability student or community stakeholder) and a classification of community stakeholders into their primary stated roles.

Evaluative feedback was gathered anonymously in writing at the end of each session, using coloured post-it notes so responses from Leading Change for Sustainability students could be distinguished from community stakeholders. Online attendees fed back via the chat window at the end of sessions. Analysis of this feedback used ten descriptive codes to identify common themes and trends within those themes. Eight of these codes were decided in advance. "Evaluation (positive)", "Evaluation (negative)", "Future Suggestions", "Learning Format" and "Benefit: learning" were based upon prompts for feedback given to participants. "Benefit: networking" and "Future Action" were used to align with two of the projects intended aims. "Logistics" was included, based upon Kozar and Lum's (2013) observation that concerns around practical matters (e.g. sound quality) are a common category of feedback for learning activities including online interaction. Two further codes, "Different Backgrounds" and "Feelings" were added based upon the responses received from participants.

To employ an Action Learning approach to the project (Schön, 1995), the module leader wrote brief reflective notes after sessions, addressing what went well, challenges and potential improvements, which have informed the overall discussion of this paper. For issues that came up warranting further attention, Tripp's (1993) approach of seeking to learn from teaching practice via reflection on Critical Incidents was used. A Critical Incident is one that is perceived by a teacher as being of particular significance, perhaps due to generating a

strong emotional response (positive or negative) for the teacher or others. Two Critical Incidents were chosen for further reflection, each responding to apparent negative experiences for community stakeholders in class. Reflection on Critical Incidents used Gibbs' (1988) reflective cycle to ensure that all key aspects of reflection were addressed, namely, Description; Feelings; Evaluation; Analysis; Conclusions; and an Action Plan.

Finally, although no formal data collection was carried out to identify longer-term influences of the project, some influences that relate to the module leader's direct experience can be reported. These include impacts on how the module was run in the following year and future collaborative work in the local community.

Results

Participation

A total of 10 Leading Change for Sustainability students (out of a cohort of 10) and 48 community stakeholders took part in the five events, giving a total of 58 unique participants out of 82 total attendances.

A breakdown by mode of attendance, including a classification of each attendee is shown in Table II. Although most participants were present in person, all but one of the events featured one to two online attendees, or in the case of the first event, a remote presenter. Remote participants were all professionals based locally, in most cases joining from their desk at work. Most contributed minimally, posing one or two questions during the session, although a remote participant in the Smart Cities event played a very active role during whole group discussions by sharing their professional experience of implementing smart cities in another city within the same region.

The success of the programme in its original aim of engaging a range of community stakeholders is evidenced by the variety of professions and roles that attended. These included staff from the City Council's Environment and Energy Teams, staff working on behaviour change for sustainable travel within the City Council, and voluntary sector professionals in support roles for the session on supporting grassroots sustainability. Many attendees were already known to the module leader, via either previous professional or voluntary collaboration, friendship groups or both. This in part was a reflection of the module leader coordinating promotion of the events, along with inevitable overlaps in sustainability networks in a local area (Pelling *et al.*, 2008).

A feature that was not expected in advance was the relatively high number of "Interested Public" attendees, who had no organisational role linked to sustainability (whether paid or voluntary), but frequently attended multiple events. From informal discussions with attendees during sessions, these appeared to be either people who frequently attend many free knowledge sharing events in the city (on almost any topic), or people with a personal commitment to sustainability for whom learning more could lead to future involvement in organised projects.

Leading Change for Sustainability student attendance at the three public events was very low, with 2, 3 and 0 students present out of a class of 10. Some students highlighted in class on the afternoon prior to the final event that they were struggling to meet coursework deadlines and so could not spare time to attend an optional workshop. Another relevant factor may be that the first Behaviour Change event took place on a day when no classes took place, meaning many students who live remotely were not in Leicester. In a similar way, the Community-led Action event may have seemed less relevant to students not living in the local area.

The Smart Cities event had a different audience to others, with many more DMU staff and sustainability professionals and no one from the voluntary sector or students from the

Table II.
Breakdown of
attendance by mode
and role

Event	Format	Attendance Mode					Other DMU (staff or students)	Sustainability Professionals	Voluntary Sector	Academic (non-DMU)	Interested Public
		Attendance Total	In Person	Online	LCS Students						
Behaviour change (1st)	Public Event	11	9	2	2	2	2	2	2	0	3
Behaviour change (2nd)	Open Class	16	16	0	7	2	2	4	0	1	2
Community-led action	Public Event	20	19	1	3	2	2	5	3	1	6
Communication	Open Class	14	14	0	6	1	1	2	3	0	2
Smart cities	Public Event	21	19	2	0	9	9	7	0	3	2

module. During initial introductions where participants stated why they attended, it was clear that there was stronger interest in interrogating the idea of smart cities than exploring the sustainability-related issues linked to the concept. The event therefore failed to convene sustainability practitioners to discuss an emergent issue, as originally intended, and instead gathered a multi-sector group concerned with smart cities.

Evaluation and feedback

Comments within the open written anonymous feedback received from participants were coded using the ten concepts shown in [Table III](#).

Evaluative comments were almost all positive. Typical general feedback was that the event was “good”, “interesting” or “helpful”, often linking these comments to how it was run, who was present or what was learned. The three negative comments related to the pace of mini-lecture input being too fast in the second Behaviour Change event and two comments describing the vocabulary and pace of the guest lecturers in the two open classes as being very difficult to understand.

The value of learning with people from different backgrounds or with different ideas was stressed by many attendees. A student fed back after the Communication event that they “really liked having people from different businesses/groups join. Think it’s really good to hear their views.” A community stakeholder at the first Behaviour Change event said that they “really enjoyed hearing other people’s opinions and their understanding of the talk as their perception seems to have been quite different.” Feedback such as this suggests that both transfer of information and exploration of ways of thinking about issues were taking place.

The learning format was also received very positively. Typical comments were that it was “good to have workshop style rather than all PowerPoint.” (from a community stakeholder, after the Smart Cities event) and “liked format – good mix of learning, reflecting and discussing” (community stakeholder, Community-led Action event). Exceptions to this were the above negative comments on guest lectures and some suggested small changes, such as enabling attendees to have discussions with more than one small group or making more use of videos for input.

In terms of the benefits of attending the events, the most frequent response was a specific idea learned, such as a different approach to sustainability communication. There were several instances where practitioners reported valuing an encounter with theory, such as “good to speak to others in organisations and apply theory to practice (free CPD!)”. Another common response highlighted learning that might need longer to take on board, such as “It has given me lots to think about”, (community stakeholder, second Behaviour change event) and “Real eye-opener. Thought provoking” (community stakeholder, Community-led Action event).

Few participants reported network consolidation or development as an outcome. Network development was only apparent for the Community-led Action event, which had a specific problem-orientation, supporting grassroots environmental projects in Leicester. “Intended action” as an outcome followed the same pattern, with the most commonly reported planned action being to help develop further networking events after the Community-led Action event. A lack of planned follow-up action beyond discussion was cited as a concern by one participant in the Smart Cities event.

Affective responses were most frequently positive emotions such as enjoyment or interest. There was one apparent instance of anxiety, with a practitioner feeling concerned that they should have had more to say than they did. There were no major logistical

Table III.
Feedback received
broken down by
category, role and
event

Descriptive code	Number of instances	Breakdown by role		1: Behaviour change (1st)	2: Behaviour change (2nd)	Breakdown by event		
		Students	Others			3: Community-led action	4: Communication	5: Smart cities
Evaluation (positive)	40	9	31	7	5	11	7	10
Evaluation (negative)	3	1	2	2	0	0	1	0
Future suggestions	14	2	12	4	2	1	1	6
Different backgrounds	17	6	11	6	2	0	7	2
Feelings	9	0	9	1	1	2	2	3
Logistics	13	2	11	2	3	5	0	3
Learning format	16	0	16	3	3	3	0	7
Benefit learning	37	10	27	6	6	10	10	5
Benefit networking	7	0	7	0	0	6	0	1
Future action	5	1	4	0	0	4	1	0

problems, although some individuals reported concerns such as comfortable seating, signage for one of the events, and lighting in classrooms.

Inclusivity: reflection on critical incidents

The two critical incidents both related to the theme of enabling an inclusive learning environment for community stakeholders, and both relate to participants having a negative experience in an open class. In the first incident, a participant in an open class perceived that they were not welcome after their comments to the whole group were cut short by the module leader so that the session could move on. The individual suggested that they were being made unwelcome and then walked out. In the second incident, a community participant from the module leader's social network shared afterwards that they had felt that they were alone in struggling to make sense of a guest speaker's lecture in an open class. Some key points from the analysis and conclusions of subsequent reflections by the module leader are included below.

Subsequent reflection on the first incident and discussion with others present suggested that the personality and mood of the participant could have been the dominant factor. One way that such problems might be avoided in future is through stronger communication in advance and at the start of the session on behavioural expectations in a co-learning environment. This could clarify what will happen, what is expected (e.g. that everyone has a chance to participate) and how the facilitator will run the session (e.g. aiming to help everyone learn, limiting contributions if time is running short). Whilst such strategies are standard approaches to facilitation, what is distinctive here is a learning environment that may be unfamiliar to participants joining as guests. Therefore, establishing behavioural expectations appears worth particular attention when using a co-learning approach.

The second incident also highlights the value of advance preparation for those delivering or taking part. It might have been better managed in a number of ways: asking for a shorter presentation; briefing the colleague to be very aware of using accessible language, or at least clearly explaining key terms; or giving attendees permission to interrupt and ask questions, so that participants do not feel isolated. The incident also highlights a broader challenge to the co-learning classroom approach, whereby community participants may not share core concepts or vocabulary that have been introduced through the university course (or conversely, students may not know key terms within a field of work). This points to accessibility relating to the level of learning (foundational enough to be accessible), topics addressed (not requiring many years' experience to engage), format of learning and terminology used.

Related to these specific instances was a general observation that community stakeholders tended to dominate discussion in whole group interactions. However, no students fed back negatively about this; and indeed, on the whole the students tended to state that they greatly valued hearing from practitioners' real-world experiences. This points to a possible positioning of co-learning classes as somewhere between an interaction where everyone learns equally from each other and something akin to a guest lecture or panel discussion, where an external expert is given more "floor time" to share what they know.

Longer-term impacts

Evidence for longer-term impacts is only available via the direct experience of the module leader. Two positive outcomes linked to the module are worth highlighting. Firstly, the two initial sessions led to a collaboration with Leicester City Council around behaviour change for active travel. This collaboration started with the City Council staff purchasing books

referred to during the two sessions on behaviour change and seeking to adopt their key ideas. It developed further through an informal mentoring relationship, with the module leader acting as a sounding board, during three subsequent meetings, to feedback on how to implement a theory-based approach to behaviour change. Finally, the City Council project team participated in a Leading Change for Sustainability class the next year as guest speakers to share their learning from applying the framework. Another collaboration was with local voluntary groups involved in campaigning on climate change. This developed through a local stakeholder who attended the open class on Communication arranging for the module leader to deliver a free one-day training session on key principles of sustainability communication.

The module has run for one further year since the project described here. In that year, public events and open classes were not offered. The key constraint affecting this was insufficient time for the module leader to arrange and promote an events programme, coupled with no strong push to do so from within the university. However, known individuals associated with the university were invited to timetabled classes that could support their work. This happened three times: a professional from local government attended two sessions on behaviour change design and a DMU PhD student attended one session on systems thinking. Although the co-learning approach has been shared at four conferences over the past year, internally to DMU and externally, no instances of its adoption have yet been shared with the author.

Discussion

Focus on local sustainability impacts

The project illustrated three complementary but distinct approaches to generating local sustainability impacts, which each relate to the co-learning concept differently.

Firstly, three of the sessions (those covering Behaviour Change and Communication) had a pragmatic focus on effective practical approaches, drawing on and seeking to integrate learning from theory and experience. Practitioners generally enjoyed encountering theoretical ideas to inform their work and enjoyed discussing them in a setting with diverse participants. Thus, the sessions made a positive contribution to learning at the level of the individual actor, one of three types of sustainability learning discussed by [Loeber *et al.* \(2007\)](#). The subsequent partnership with Leicester City Council offers a potentially effective model for ongoing knowledge exchange, linking theory from a taught course with local practice for mutual benefit. This also points to a potential alternative approach to co-learning that seeks partnership directly with organisations rather than self-selecting individuals from organisations. Another potential evolution of this approach over time would be for universities to offer space and facilitation for action learning around particular practices linked to taught courses, perhaps again exchanging this for input into teaching sessions. Each of the above approaches brings the benefit of continuous learning and linkages to professional practice for a module leader, thus positioning all participants as learners in a social learning system ([Wenger, 2000](#); [Tilbury, 2007](#)).

The three sessions in Leading Change for Sustainability where theory encountered practice can be viewed as having particular benefit to practitioners that may be operating in roles without prior professional training. Based upon the backgrounds of people who participated in these sessions, it appears that they can offer particular value for people from local government, the voluntary sector and large organisations, especially those with less experience in their roles. For more experienced external stakeholders, being invited to share their knowledge and experience through a guest lecture may therefore be a more appropriate form of knowledge exchange. A traditional approach to support a need for learning amongst

professionals would be to provide training or certified Continuous Professional Development (CPD) courses. However, even where universities would prefer to pursue this strategy, it could still be seen as worthwhile to gauge interest in CPD courses through the delivery of co-learning activities on relevant courses.

A second approach to generating local sustainability impacts via co-learning was demonstrated by the Community-led Action public event. This served a different function to other events as it was geared towards potential action and, as participant feedback indicated, attendees valued feeling part of a community of practitioners working towards a shared agenda. This type of event aligns more strongly with concepts of action-oriented Social Learning (Wenger, 2000; Keen *et al.*, 2005; Wals *et al.*, 2009; Sol *et al.*, 2013) and learning linked to socio-technical innovation for sustainability (Loeber *et al.*, 2007). For this event, Wenger's (1998) concepts of joint enterprise and shared repertoire were apparent, along with a current deficit of opportunities for mutual engagement. Such events could tackle a wide range of specific local issues linked to the SDGs, such as health, waste or renewable energy, and universities are often well placed to host them and provide speakers with research or teaching interests linked to those issues.

A third approach to sustainability impacts is illustrated by the Smart Cities event. This in many ways aligned with Flyvbjerg's (2001) concept of Phronesis, that is, of academics contributing to the wider community's practical rationality through exploration of questions of power, governance and societal impact linked to an emerging socio-technical change. This type of event and discussion is less easily linked to specific local projects and is perhaps more akin to broader questions, such as the deliberations around values and priorities advocated in relation to climate change by Corner and Clarke (2017). This functioned well as an evening event without students in attendance, but could conceivably be offered as co-learning open classes, in particular where students are exploring foundational ideas or theories in disciplines linked to societal concerns.

Focus on students' learning

For students on Leading Change for Sustainability, exploring the module's principles by meeting and engaging with practice in the real world was seen as highly beneficial. Whilst encounters between theory and practice are widespread in higher education, it is not as clear-cut that the co-learning approach discussed here would be as applicable or effective in other situations.

The specific context of this project and the module are likely to have had a strong influence on the outcomes achieved. This includes the module and programme linked to the events, the social networks and preferred teaching approach of the module leader, the characteristics of the students and the relationships of each of these to the wider university and community. Leading Change for Sustainability is a module with small student numbers, enabling the addition of external participants whilst still ensuring a workshop-based mode of delivery. If student numbers were very low, this could run the risk of students being heavily outnumbered by practitioners, to the potential detriment of their experience. Larger module groups might struggle to find a suitable space for small-group interaction, which would be more challenging in lecture theatres. A willingness to learn from engagement with stakeholders may also relate to the relatively mature and motivated cohort of students on the course. Undergraduate courses where students may have relatively little professional or voluntary experience may not offer as strong a fit. Finally, in terms of the topics or subject discipline, the co-learning approach was accessible to students in this case, as the theory introduced related to everyday activities (communication, understanding others' behaviour) that both students and community stakeholders could relate to, either personally or via

sustainability-related roles. The same would not hold true for many disciplines, particularly, perhaps, those such as Nursing or Engineering, which are founded upon professional training.

Delivering an integrated approach

Given these factors, it is worthwhile to consider how and when an integrated approach to co-learning classes for student and community benefit might prove viable. First, although taught classes at university are “happening anyway”, this project has highlighted that it is not true that additional people can join without resource implications, even in lecture mode. The experience of this project highlights the need for accessibility, in terms of prior knowledge, language used and clarity on the terms of participation. There is also a need to resource the promotion of open sessions, administer sign-ups and change materials and activities to ensure accessibility. This requires a commitment from a university that this is worthwhile, at least in the case of selected classes, and support for staff to effectively design such sessions. Despite this, it is certainly conceivable to imagine a university taking this approach, promoting, for example, several timetabled classes each week as open lectures, covering a range of accessible topics. An effective approach that will enhance engagement might be to jointly organise sessions with external organisations around a shared enterprise (e.g. reducing child poverty locally), so that both contributors and attendees can be drawn from the wider stakeholder community.

When considering whether to conduct public events outside of scheduled classes, the key challenge appears to be integrating students, who for various reasons detailed above mostly did not attend. A useful strategy may be to integrate such events more closely into taught courses, so attendance is linked more strongly with other course activities. An example is Dalhousie's Thursday night lecture series ([Dalhousie University, 2018](#)), which is used as a basis for discussion in classes the following day. To be fair to all students though, this approach would need to ensure accessibility, perhaps by recording talks so that they can be viewed online prior to class if a student cannot attend. Beyond practical concerns around geographic proximity and available time to attend extra-curricular sessions, the motivation for students to engage can be linked with how strongly they identify with the CoP that events are seeking to promote and develop. [Wenger \(2000\)](#) stresses that a CoP is bound together by a shared sense of purpose; the module's intended purpose to engender local action for sustainable development was not matched by a programme-level commitment, making it unlikely that students would strongly buy-in over a short period of time. Thus, active student involvement is perhaps more likely for events organised with or by groups whose purposes they share, such as student societies (e.g. focussed on social enterprise or local volunteering) or professional bodies (e.g. addressing specific topics, such as energy or social work).

Conclusion

This project piloted a novel approach to learning for sustainable development, using facilitated co-learning open classes and workshop-style public events. It succeeded in its goal of attracting diverse stakeholders to co-learn, and the two distinctive aspects (of diverse participants and a facilitated workshop approach) were popular with both students and community stakeholder participants. Given this, there is apparent value in further practice and research to explore the potential and limitations of this approach.

This case study highlights some key issues to consider when designing co-learning classes for sustainability. First, the function of the class and its degree of alignment with the focus of a taught course. Through this study, three distinctive scenarios were observed:

instrumental learning on how to undertake an aspect of sustainability practice that benefits from both theoretical and practical experience; reflection linked to local action or socio-technical innovation; and deliberative discussion on social/environmental questions, which may or may not be linked to processes of agency or decision-making. Whilst a learning format combining input, individual and group reflection and open discussion can have value in each of these three scenarios, they are likely to attract different audiences. Only one-off events have been explored here, but in many of these cases, a more sustained learning dialogue may be more appropriate.

Student attendance at these events was at times challenging to achieve. Running these events within class time was highly valued by students; out-of-class activities may have low attendance, as was the case in this study, unless they are seen as integral to the course in some way. Based on this study, they are likely to fit best with the scenarios of enabling individual linking between theory and practice or more deliberative discussion on the bigger picture of aspects of sustainability. Care is needed to ensure an inclusive environment by making behavioural expectations clear to all and ensuring that participants share the core concepts needed to engage with materials and learning activities.

A limitation of this study was the small scale of the project, limited scope of evaluation and the specific context in which it was carried out. Further work could usefully explore co-learning classes in a range of other contexts and disciplines, with a stronger focus on aspects such as classroom dynamics, learning outcomes and future actions that result.

Although a motivation behind this work is to take advantage of the added value of classes that are taking place anyway, this pilot project has clarified that developing and maintaining stakeholder relationships and planning and promoting events was a key requirement to make this approach viable. However, if such events are viewed not only as a strategy for enhanced learning, but also as a means to develop collaborative partnerships, then the case for this approach appears stronger. Thus, overall, co-learning classes appear to have some potential to enhance teaching, research and a university's impact on the sustainable development agenda.

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